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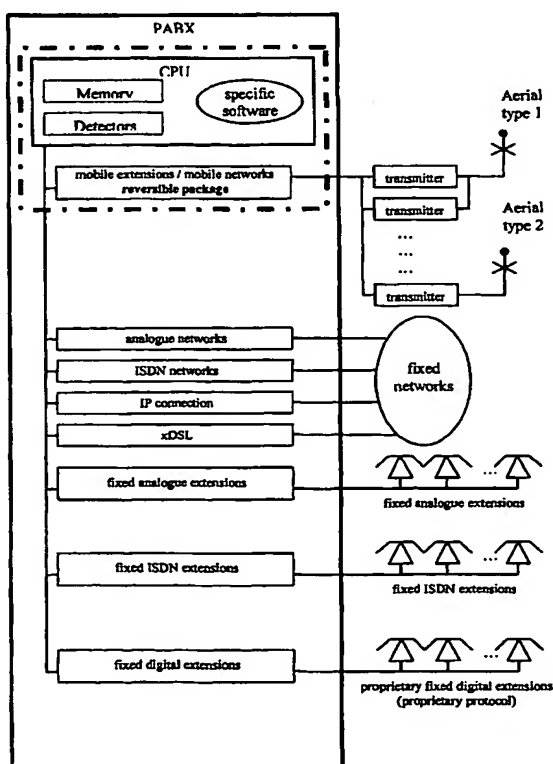
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(54) Title: A COMMUNICATION SYSTEM BETWEEN A MOBILE PHONE AND A TELEPHONE/DATA SWITCHING SYSTEM WHICH ALLOWS THE MOBILE PHONE TO BE AN EXTENSION OF THIS TELEPHONE/DATA SWITCHING SYSTEM



(57) Abstract: The present invention refers to a communication system between a mobile phone and a PABX, which allows any programmable mobile phone to work as a PABX extension, being the PABX responsible for answering, making and transferring phone calls, as well as detection, identification and integration of mobile phones, and also a PABX installed software which allows to perform those functions.

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AMENDED CLAIMS

**[Received by the International Bureau on 25 MAR 2004 (25.03.04) ;
original claims 1, amended ; original claims 2 to 25, unchanged]**

1. A communication system between a mobile phone and a PABX,
characterized in that it allows any programmable mobile phone to
5 connect and communicate as a PABX extension, making and receiving
phone calls, as well as accessing all services of the referred
PABX, as an internal extension of the referred PABX, with the
referred PABX communicating with the referred mobile phone directly
through the mobile network, the communication's transmission line
10 between the referred mobile phone and the referred PABX is
established by accessing mobile networks and without needing to
access fixed networks of the following type: PSTN, ISDN, IP or
direct lines.
2. System according to claim 1, characterized in that the
15 communication's transmission line between a mobile phone and a PABX
is a cellular oriented communication like GSM, UMTS, TDMA, CDMA,
AMPS, NAMPS, ETACS and others.
3. System according to claim 1, characterized in that the
communication's transmission line between a mobile phone and a PABX
20 is a satellite communication.
4. System according to claim 1, characterized in that the
communication's transmission line between a mobile phone and a PABX
is a radio communication, "trunking", UHF, VHF and other
frequencies allowed by each country's law.
- 25 5. System according to the previous claims 1 to 4, characterized
in that it allows transferring calls received by PABX either from
fixed or from mobile telephone networks.
6. System according to claims 1 to 4, characterized in that it
allows the transfer of phone calls made from PABX either from fixed
30 or from mobile telephone networks.

7. System according to the previous claims, characterized in that it allows the mobile phone to have also access to PABX authorized services.

8. System according to the previous claims, characterized in that it comprises a PABX, a programmable mobile phone compatible with the PABX installed transmitter and a transmission line also compatible with the PABX installed transmitter.

9. System according to claim 8, characterized in that the PABX has fixed and mobile network circuits and fixed and mobile extension circuits.

10. System according to claim 8, characterized in that the PABX has one or more transmitters as GSM, UMTS, TDMA, CDMA, AMPS, NAMPS, ETACS, or a transmission by satellite, or a different frequency transmitters according to the country's law at the moment of communication.

11. System according to claim 8, characterized in that the mobile phone is compatible with the PABX installed transmitter, as GSM, UMTS, TDMA, CDMA, AMPS, NAMPS, ETACS, or a transmission by satellite, or other, according to the PABX installed system.

12. System according to claim 8, characterized in that the transmission line is compatible with the PABX installed transmitter, thus, comprising a GSM, UMTS, TDMA, CDMA, AMPS, NAMPS or ETACS transmitter or a satellite transmitter, or others, according to the PABX installed system.

13. System according to claim 10, characterized in that the PABX comprises detection circuits to identify the mobile phone after the communication establishment.

14. System according to claim 13, characterized in that the mentioned identification is made by a code sent through the mobile phone.

15. System according to claim 13, characterized in that the mentioned identification is done automatically.

16. System according to claims 10 to 15, characterized in that it allows the referenced mobile phone to be recognized by more than
5 one PABX.

17. System according to claim 10, characterized in that the PABX comprises a central processing unit, CPU, which has a system functions developed software, namely answering, making and transferring phone calls, and detecting, identifying and
10 integrating mobile phones.

18. PABX, which comprises the system according with to any of the previous claims.

19. PABX according to claim 18, characterized in that its installed reversible package is able, at any time of work, by CPU orders, to
15 switch the network function with extension.

20. Software integrated in the PABX CPU according to claim 18, characterized in that it allows the system function development, namely answering, making and transferring phone calls, and detecting, identifying and integrating mobile phones.

20 21. Software according to claim 20, characterized in that it allows to control the mobile phone identification through system detectors and after making that identification, to charge that mobile phone with an extension number which corresponds to the mobile phone identification in the CPU memory.

25 22. Software according to claims 20 to 21, characterized in that it is capable to order a PABX reversible package so that the communication channel which is being used by the mobile phone, switch from network to extension.

23. Software according to claims 20 to 22, characterized in that it is capable to program vary logical extension number according to the existent mobile phone numbers.

5 24. Software according to claims 20 to 23, characterized in that it is capable to charge, bound PABX accesses or services to mobile phone extensions as PABX proceeds with fixed extensions.

10 25. Software integrated in the PABX CPU according to claims 20 to 24, characterized in that the function procedure of answering, making and transferring phone calls from PABX to a mobile phone, is done as described in the attached Figures.

STATEMENT UNDER ARTICLE 19(1)

According to Article 19(1), the following is an explanation of the only amendments done, covering Claim 1.

a) "as well as accessing all services of the referred PABX"

This portion of the amendment was introduced in order to claim, as already explained in the description (page 8, line 29 - page 9, line 2; page 11, line 11 - page 11, line 13; page 17, line 26 - page 17, line 28), that the mobile extension integration includes access to all PABX services. This will reinforce the total mobile extension integration, through the reversible board that, during a communication and after identification, switches from trunk to extension circuit according to the requirements, giving to the mobile phone all PABX extension properties. Other systems as patent number US 6324410 B1 were designed to allow fixed PABX extensions to make or to receive phone calls from the mobile network. The present invention makes the opposite, giving mobility to all PABX services which are now available to the remote extension of the PABX. Furthermore, our invention reduces the equipment costs avoiding the peripheral devices investment, and increases the operability and encourages the same processing to internal and remote extension being them controlled by the same central processing unit which manages and controls the integration.

b)"with the referred PABX communicating with the referred mobile phone directly through the mobile network, the communication's

transmission line between the referred mobile phone and the referred PABX is established by accessing mobile networks and without needing to access fixed networks of the following type: PSTN, ISDN, IP or direct lines."

This portion of the amendment was introduced to claim, as explained in the description (page 3, line 21 - page 3, line 22) that the referred "independent radio system between the PABX and mobile phone" is independent from any fixed network, and later in the description (page 5, line 5 - page 5, line 6; page 5, line 11 - page 5, line 13; page 5, line 23 - page 5, line 24) is specified that as the mobile transmitter and the transmission line are dependent to the mobile phone system, they must be the same so that the system improves the cost efficiency, avoiding paying communications between different networks (such as mobile to fixed), as well as the compatibility problems in protocols and signalling between networks. Our invention allows the PABX access to any mobile phone, without accessing any fixed trunk line. In our invention the elevated communication costs enclosing fixed and mobile users are avoided.

This modification is here introduced to reinforce the fact of the mobile extension integration is made by the PABX and independently of any special configuration of any mobile telephone operator (as in publication FR 2776883 A) or the access to fixed telephone operator (as in publication US 2002/0019246 A1 or US 5839067 A) or even paying any direct line to mobile operator elements (as in publication US 5839067 A).

In conclusion, to the knowledge of the applicant, there is no doubt that the claimed system is **new and does not form part of any of the prior art references.**